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ABSTRACT

The intent of this guidebook is to assist teachers and program directors to prepare instructional objectives in a way that will be most useful both for them and for those involved in the evaluation of humanities programs. Contemporary humanities education seeks to achieve its objectives in four categories of student behavior: (1) reasoning, meaning the individual can modify her or his conduct to meet new situations; (2) the affective domain, how a person feels about wanting to learn and what each feels after learning; (3) interdisciplinary learning, understanding the interrelationships between disciplines and their personal and social significance; and (4) values, helping young people develop values that will give them a sense of direction. Humanities education seeks to support these objectives through three major strategies: (1) process approach, recognizing a need to develop an educational approach based on adaptable process skill, secondarily on content; (2) utilizing community cultural resources, asserting that school and community must be integrally related in planning and implementing educational change, and (3) a focus on individualized instruction. (JD)

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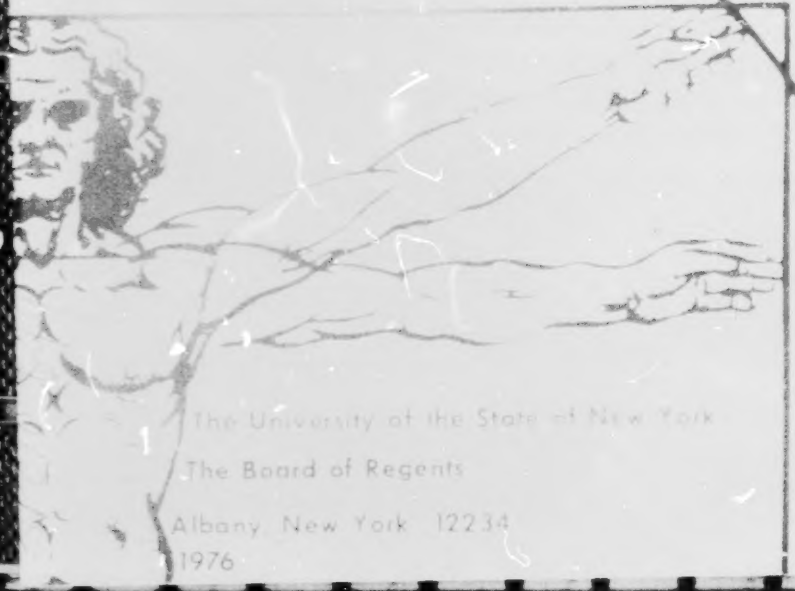
THE HUMANITIES SERIES

DEVELOPING INSTRUCTIONAL OBJECTIVES

PROJECT SEARCH DEVELOPMENT

FOR HUMANITIES PROGRAMS



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THE HUMANITIES SERIES

The Humanities Series addresses essential aspects of contemporary humanities education, a process-oriented approach to human concerns, adaptable to varied content areas. The Humanities Education Unit personnel, responding to the growing demands of humanities educators in the schools, developed the series to provide rationales, flexible guidelines and appropriate skills to meet the needs of students, kindergarten through grade 12, in an age of change.

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PROJECT SEARCH EVALUATION*

*Project SEARCH Developments, with support from the JDR 3rd Fund and Title III of the Elementary and Secondary Education Act. Project SEARCH, a pilot consortium of school districts across New York State, 1971-75, implemented the major objectives of contemporary humanities education.

Foreword to the Humanities Series

The specific intent of this guidebook is to assist teachers to prepare instructional objectives in a way that will be most useful both for them and for those involved in the evaluation of humanities programs which focus on the reasoning process, the students' affective needs, interdisciplinary approaches to personal and social problems, and the valuing process. This guide will be most useful in moving from the original idea for a new lesson plan or experience to its "installation" (actually putting the idea into practice) in the classroom.

The need to humanize education defines a vital educational goal. Few schools have succeeded in developing learning environments humanistic in process, in content, or in perspectives. The Humanities Series addresses aspects of concerns related to the value commitments open to each individual and to the consequences such choices have on the individual and on others. Contemporary humanities education seeks to achieve its objectives in four categories of student behavior.

Project SEARCH, a consortium of school districts in New York State (1971-75) developed in-service staff programs, curricula and student learning experiences based on these four objectives. Several titles in the Humanities Series incorporate outcomes of Project SEARCH. The objectives are:

1. *Reasoning:* If the freedom of man consists in determination of his choices by factors within himself, we often say that it is man's intelligence or reason which governs his purposive activity. Reasoning means the individual can modify her or his conduct to meet new situations. The person can not only change, but grow. Each one can profit from past experience. Each can become responsible.

2. *The Affective Domain:* Education has long concerned itself with the cognitive, with knowledge--as if there were only one kind of knowledge, factual data. However, a complementary aspect of knowledge, each person's affective powers, can deter or enhance his cognitive development. How a girl or boy, woman or man feels about wanting to learn, how she or he feels as each learns, and what each feels after learning--these lie in the affective domain. These neglected aspects, the vital area of attitudes and personally held values, form a integral concern of the humanizing learning process. Such self-awareness helps the professor cope with change.

3. *Interdisciplinary Learning:* Fragmentation of learning, the separation of disciplines into isolated compartments, too often leaves even the able student frustrated. Knowing many facts, the learner still understands neither the interrelationships between disciplines nor their personal and social significance. The curriculum envisioned by humanities education integrates the arts, the physical, social and behavioral sciences and other disciplines, pursuits and circumstances whenever such interdisciplinary instruction and experiences contribute to a whole life view.

4. *Values:* The basic values which undergird the American way of life and which have guided the actions of people for centuries are being severely tested in an era of rapid technological change, social readjustment, and population expansion. The shattering impacts of these changes are most visible among the young. Schools, to be successful in helping young people develop values that will give them a sense of direction, must offer opportunities for students to make free choices from among alternatives.

Reasoning, affect and interdisciplinary learning are seen as supporting the process approaches to values development. These concepts cover a very broad range of human activity. The purpose of the Humanities Series is to help teachers design student learning experiences related to these categories.

In addition, humanities education seeks to support these four objectives through three major strategies:

1. PROCESS APPROACH: Change is so rapid that no one can predict precisely what knowledge and information individuals will need to know in just a few years. Humanities education sees a compelling need to develop an educational approach based on adaptable process skills, secondarily on content. These process skills, transferable and dynamic, including the individual's perceptual, motor, affective, cognitive and social interaction skills, will enable a student to cope with a changing world.

2. UTILIZING COMMUNITY CULTURAL RESOURCES: Any system of education which represents a marked departure from traditional learning will fail if it ignores the community's needs, resources and aspirations. School and community must be integrally related both in planning and implementing educational change. Most adults have been educated under a system very similar to the system operating today. These adults must be involved in the new thinking and research on

the nature of learning if we are to anticipate their co-operative support. In addition, the school must view the community as what it is, an extension of the school. Such interaction between school and community which encourages free reciprocal flow of learners and instructors can result in realistic, exciting learning activities. Not only will students enter the community for learning experiences, but professionals, craftsmen, artists, farmers, retired citizens will likewise share their competencies with youthful learners within the school.

3. INDIVIDUALIZED INSTRUCTION: Humanistic education focusses on the worth of the individual, on the self-actualization of each girl or boy. Implicit in the program are varied opportunities for each student to participate in sequenced learning experiences adapted to individual capacities and responsive to individual interests. Such learning experiences can help each student discover his or her potential, challenge latent abilities, prepare each to make his appropriate, unique and effective contribution in a changing society. The Humanities Series is dedicated to helping our youth by providing administrators and teachers with a process approach to all learning, a humanizing process which will enable our boys and girls to live not only the good life, but the life worth living.

Charles J. Trupia, Supervisor
Humanities and Performing
Arts Education Unit

Albany, New York
May, 1976

PREFACE

This guidebook was prepared at the request of the participating school districts in Project SEARCH. The specific intent of this guidebook is to assist teachers to prepare instructional objectives in a way that will be most useful both for them and for those involved in the evaluation of humanities programs.

The content of this guidebook is derived from three primary sources: first, the humanities objectives of Project SEARCH; second, several published works dealing with instructional objectives (referred to later in this guidebook); and third, a series of workshops and consultations held with Project directors, evaluation specialists and teachers from Project SEARCH schools.

This guidebook is similar to many others which have been prepared for teachers and project directors who are confronted with the demands of formal evaluation procedures. It defines its own objectives in behavioral terms (see Appendix A) and allows the reader to engage in some self-evaluation to assess how well he is doing in meeting these objectives (see Appendix B). It differs from most guidebooks, however, in at least one major respect: many of the examples which are used and much of the content are focussed directly on the objectives and challenges of humanities education.

These materials have been designed primarily for the teachers and project directors involved in humanities education. In doing so, we recognize that many of you are familiar with the terminology and methods of preparing objectives, that some of you are deeply involved in designing creative learning experiences, and that others are also familiar with evaluation research and have special interests and/or responsibilities in this area. In contrast, many of you may have little experience (or perhaps even negative experiences) with all of these concerns.

In reviewing many experiences in course planning, it has been discovered that there are three major sources of friction concerning objectives:

1) Expectations about what one is "supposed" to teach;
2) Assumptions about what the students need to learn;
3) Reservations about the amount of effort required of the teacher and his or her colleagues.

One method of dealing with all of these problems simultaneously is a rigorous attack on the question, "What are your students supposed to derive from your teaching?" To this end, it is suggested that the concept of the "instructional objective" is a very useful one to explore. Note that "instructional" and not "behavioral" objective is used.

We urge you to expand and to improve this guidebook. Let some of your students read it. Ask them if it is useful and how they would improve it. Challenge it with your fellow teachers in your school or with State Education Department humanities personnel in Albany.

This publication was developed by David S. Abbey of Evaluation Research Limited, Toronto, Canada. The material was prepared for printing by Katherine V. King and William R. Clauss, Associates for Humanities Education.

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I. Project SEARCH

(i) Aims and Scope of Project SEARCH

Project SEARCH is an attempt to bring about an overall improvement of education. "The underlying need to which Project SEARCH is directed is that of humanizing education." However, SEARCH is not an isolated example of academic research. It is, instead, a cooperative program developed for and by teachers and administrative personnel across New York State. It involves teachers from both public and parochial schools, and it encompasses the learning activities of students from K-12.

(ii) Focus of SEARCH

The broad objectives of SEARCH involve teachers, students, and the inter-relations of these with parents, the school, and other community resources. In addition, there are many objectives stated in terms of the following four categories of student behavior:

1. The reasoning process
2. The student's affective needs
3. Inter-disciplinary approaches
4. The valuing process.*

These concepts cover a very broad range of human activity and it is the purpose of this guidebook to help teachers to define specific instructional objectives and to design learning experiences related to these categories.

II. Role of the Teacher

(i) Teaching

Humanities education demands not only that normal teaching functions be carried out, but also that a great deal of attention and effort be directed towards innovative teaching styles, new approaches to community resources, and new or increased attention to the goals of education and to the needs of students. Many teachers already engaged in innovation will likely find new support for their efforts

*See Section 9 below for more detailed definition of this process and "Valuing: a Discussion Guide." The Division of Humanities and Arts Education, Albany.

while others may find new opportunities to work more closely with their colleagues on problems of mutual interest.

This guidebook will probably be most useful in the process of moving from the original idea for a new lesson plan or experience to its "installation" (actually putting the idea into practice) in the classroom. In the development of these new learning experiences, this guidebook can be used as a basis for stating objectives in a clear and unambiguous manner. The guidebook will not provide a basis for evaluating the worth of the experience. All it can do is to make it easier to determine what the goals of the experience were and whether or not these were reached.

(ii) Evaluation

By stating objectives with as much precision as she/he can, the teacher is in an ideal position to evaluate progress towards achieving goals. Achievement can be thought of either in terms of pupil achievement or in terms of instructional efficiency. Objectives which include clear-cut criteria or standards of performance can be used by the teacher to see more clearly where additional efforts may be needed or where higher standards or goals can be set.

One final comment should be made about evaluation. A commitment to evaluation means a commitment towards openness and trust--towards sharing information about what works and what does not, and why. This is fundamental as a plan to humanize education and to make the curriculum realistic and responsible.

III. Role of Objectives

(i) Designing a Learning Experience

Most well-designed learning experiences probably came about through application of a series of judgments over time. Of course, there are likely some lessons or exercises that students engage in which are known to be effective simply because of the enthusiasm they generate and the interest which students show. These exercises or classes may not have been systematically designed--

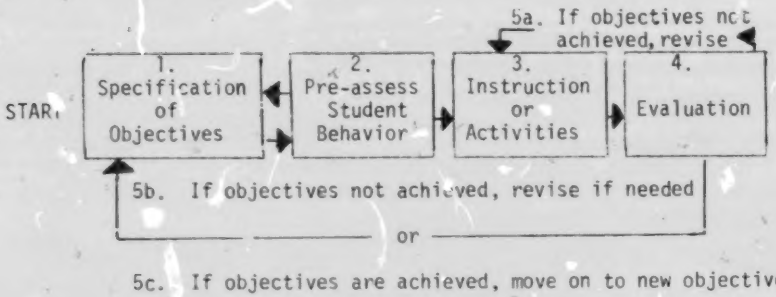
they may be the result of intuition or a "gut-level feeling" about what would be appropriate at a given time in a given situation, and this guidebook is not designed to eliminate such spontaneous teaching. Nor is this selection planned to force a single model of instructional design. The model which is presented here is one which has been found useful by many teachers and curriculum planners, especially those who have also attempted to evaluate the effectiveness of their programs or their instruction. It is recommended as one technique for creating, implementing and evaluating new learning experiences.

The suggested model has only five elements:

1. Specify objectives
2. Pre-assess student behavior
3. Select learning activities (or instructional content)
4. Evaluate outcomes
5. Revise No. 1 (objectives) or No. 3 (activities or instruction) if required.

This model has been discussed in detail elsewhere (see Popham and Baker, 1970)* as well as in many articles or texts. It can be represented in a simple diagram as follows:

Figure 1. A model for instructional design


5a. If objectives not achieved, revise
START
1. Specification of Objectives
2. Pre-assess Student Behavior
3. Instruction or Activities
4. Evaluation
5b. If objectives not achieved, revise if needed
or
5c. If objectives are achieved, move on to new objectives

*Popham, W. J. and Baker, E. J., Establishing Instructional Goals, Englewood , New Jersey: Prentice-Hall. 1970.

(ii) Relation of design elements to one another

In stage 1 of the design, the objectives of the instruction are specified in behavioral terms. By doing so, it is possible to do a number of things:

First, it allows us to focus clearly on some observable behavior rather than some internal process on the part of the student. (We will deal with this in more detail in the following sections of this guidebook.)

Second, it prompts us to measure the current performance of our students (see box number 2 of Figure 1) prior to engaging in any instruction. This initial level of behavior (termed "entry behavior") may frequently cause us to restate or to revise our initial statement of objectives. This is the meaning of the two arrows between boxes 1 and 2 of Figure 1.

Many times we do not actually test our students to see what their performance is at exactly the same time as we are forming our objectives. However, if we keep our students' behavior in mind--what we are reasonably certain they can do at this time--we tend to write objectives which are realistic and hence attainable.

Once the objectives have been specified and a pre-assessment of the students' behavior is made, we can choose a teaching method (or design an experience) - Box 3 - which seems most clearly related to the behavior we wish to change. This is not a mechanical choice of method, and a considerable degree of artistry and invention is left open to each teacher.

Once the instruction is undertaken (or completed, if it is a short class or experience designed to bring about a highly specific change), evaluation can be undertaken (Box 4). Since the behavior to be changed has been specified as part of the objective, the selection of appropriate evaluation tests becomes an integral part of the design of the whole experience. Indeed, many objectives can and should be framed with the evaluation standards (criteria) in mind. This does, in fact, mean that you teach what is going to be measured. It also means that the measurement is going to be used to affect how you teach (see arrow marked 5a. in Figure 1) and perhaps what you teach (arrows marked 5b. and 5c.).

(iii) Role of objectives and evaluation

The value of approaching instructional design in this manner is that your intentions and your expectations become more explicit and easier to discuss. Communication about learning and about standards can become a rich source of learning for your students, and the existence of objectives and criteria can frequently lead to students becoming involved in planning and in contracting to meet standards.* Although engaging in this type of design can become time-consuming and even frustrating if it is done for every learning experience, it can be a vehicle through which several teachers, or teachers and students, or even teachers, students and parents can cooperate in broadening or deepening the curriculum.

Instructional design which includes a statement of objectives can also be useful for independent observation and evaluation. That is, by preparing a design and specifying desired outcomes, criteria, and evaluation methods, it becomes possible for those attempting to measure the success of humanities programs to focus on the behavior and goals which you and your students have decided to pursue.

Finally, note that stating objectives allows you to concentrate on (i.e., to observe) the effectiveness of your program as opposed to being satisfied with its affects. An experience that is exciting for your students is not necessarily effective. If the objective was "to cause excitement" then one could argue it was effective. However, unless "excitement" was specified as a goal, then it belongs in the affects category.

IV. Instructional Objectives

(i) Four parts of an objective

In the most general terms, an objective is a statement that answers this question, "Who will do what, how will it be observed and how well should it be done?" This statement contains the four essentials of an objective:

*Author's note: In my experience, students rise to the challenge which is posed when objectives and criteria are stated. They appreciate knowing when they have matched your expectations. Likewise, they feel free to comment on the instructional method or on new levels of performance which they believe they could reach.

1. A subject variable is specified ("Who..?");
2. An action verb states what the subject will do ("...will do what..?");
3. An observation scheme specified ("...how will it be observed..?");
4. A criterion or standard of performance is specified ("...and how well should it be done?").

Here are some examples of phrases taken from objectives. In each pair, one of the phrases contributes to a "better" objective in the sense that it allows for more precision, or greater certainty, about what is actually planned or accomplished.

1 (A) After the lecture on Boyle's Law, test scores will...

(B) Test scores for those students attending the lecture on Boyle's Law will...

The underlined words in (B) specify the subject variable. This then, is an objective which applies only to those who went to a specific lecture. It makes no assumptions about the performance of other students.

* * *

2 (A) After reading Hamlet, the students will know the relationship between...

(B) After reading Hamlet, the students will write an essay which describes the relationship between...

The underlined words in 2 (B) specify an action verb. "Knowing" is not observable in and of itself. "Writing an essay" is an observable action which yields a product--something that can be scored, or rated or reacted to.

* * *

3 (A) On completion of the unit, "The Impressionists," students will show how various painters differed in creating the outlines of figures.

(B) On completion of the unit, "The Impressionists," students will match seven enlarged photographic segments from various paintings to the appropriate artist when given a list of seven artists.

The underlined words in (B) demonstrate what is meant by "show" in 3 (A). Clearly, the teacher framing such an objective did not expect the student to "show" in the sense of actually painting in different styles, nor was the student expected to merely point at the differences in the ways various painters created outlines. Notice that by specifying how the student's performance was going to be tested, the actual testing materials were also described in enough detail so that someone else could construct a similar testing procedure for their own class if they wished.

* * *

4 (A) After completing the first semester course, "Spanish 3", 90% of the students will write the examination and will pass.

(B) After completing the first semester course, "Spanish 3," 90% of the students will write the examination and will score 80% or more.

The underlined words specify a criterion which is much more precise than simply "will pass." Of course, this type of standard or criteria can be easily met by creating an easy examination or by teaching precisely those items which will be tested. A precise criteria for success does not guarantee quality of instruction, but it does indicate the expectation of those who wrote the objective.

* * *

Here are two objectives taken from the book, Establishing Instructional Goals by Popham and Baker,*

"...specifically, after finishing the program the reader will be able to perform the following behaviors:

1. The reader will distinguish accurately between written objectives stated in terms of student behavior and those not so stated.
2. The reader will convert nonbehavioral objectives into objectives that adequately describe post-instruction pupil behavior. (1970, p.22)"

Can you? These are two of the objectives of this Guidebook.

*Popham, W. J. and Baker, E. J., Establishing Instructional Goals, Englewood , New Jersey: Prentice-Hall. 1970.

(ii) The range of objectives

It is comparatively easy to create objectives when the instruction we are dealing with lies in an area of performance such as manual skills or sports. In the area of values or complex judgment, it may be considerably more difficult. Here are some examples which reflect this wide range of subject matter. Each example is assumed to start with the following subject variable:

"After completing the instruction unit in _____, at least 75% of the students will:

1. Increase their weight-lifting ability by 10% compared to their pre-instructional performance. Performance is measured as the average of three weights lifted using the clean-and-jerk method.

2. Correctly list all of the states of the Union as of 1965 and give the capital cities of each.

3. Be able to give, in essay form, at least five factors which contribute to student alienation. The choice of each factor is to be supported by reference to at least one published research article.

4. Design a questionnaire to measure "Attitudes towards Physical Disability." The design should include a rationale for the following choices: target audience, scaling method, criterion for validity," and so forth.

5. Exhibit increased interest in urban affairs. Interest will be measured by the frequency with which students: attend guest lectures on the topic, borrow books from the school library related to UA, raise questions about UA in related classes such as "Economics 220" and "Political Geography 206," choose UA as a topic on which to write theme papers.

6. Increase their interpersonal communication skills. Skill is defined by: use of clarifying questions, number of expressions reflecting others' feelings, frequency of using "discounting" statements or gestures, and so forth.

These are sample objectives and do not necessarily represent the actual intentions or criteria which might be established. Furthermore, most of them are incomplete in that the actual testing procedure (observation scheme) is not specified. The important factor to note at this point is that the creation of instructional objectives in any area of the curriculum is possible. Our next task is to show this application of objectives to a wide range of areas in more precise terms.

(iii) Three varieties of objectives

In Section IV, several different examples of instructional objectives were discussed. These objectives differed in that they were drawn from a number of different content areas: art, physical training, physics, and so forth. They also differed in terms of the type of student behavior that was being described in the objective. For example, in Section IV (ii), objective number 1 focusses on physical performance--weightlifting; objective number 2 requires the student to recall and list the states of the Union--a task involving memory; whereas in example 6 the objective is to increase students' interest--a result which is defined by (inferred from) several behaviors or indicators. These examples of objectives differ along three dimensions. These are the psychomotor, the cognitive and the affective dimensions, respectively (cf. Bloom, 1971).*

In this guidebook most attention is going to be given to the cognitive and affective dimensions (referred to as "domains" by Bloom) because of the difficulty of preparing objectives in these as compared to the psychomotor domain (see Simpson, 1966a, 1966-67).** A very brief summary of the psychomotor domain is presented in Appendix C.

*Bloom, B. S., et. al., Handbook on Formative and Summative Evaluation of Student Learning. New York: McGraw-Hill Book Company, 1971.

**Simpson, Elizabeth J. The Classification of Educational Objectives: Psychomotor Domain, Research Project No. OE-5-85-104, Urbana: University of Illinois, 1966.

Simpson, Elizabeth J., "A Slightly Tongue-in-Cheek Device for Teacher Cognition." Illinois Teacher of Home Economics, X, No. 4 (Winter 1966-67).

V. Instructional Objectives in Cognitive Areas

Objectives in the cognitive domain are concerned with the student's intellectual behavior, and within this domain six types of objectives have been defined. The first four types or classifications fall under the general heading of "convergent thinking" while the last two are termed "divergent thinking." Before examining these six types of objectives, it will be useful to consider just what is gained by these classifications and how this relates to humanities education.

Like many attempts to alter the curriculum, humanities education has started from some assumptions about the fundamental types of student behavior which ought to be affected. Thus, the "umbrella objectives" are directed towards: 1) students' critical thinking/reasoning skills, 2) students' affective development ("awareness of and interest in his environment; sensitivity to and compassion for his fellow man; understanding of and ability to adjust to change"), 3) the ability of the student to apply "interdisciplinary approaches...to personal and social problems," and 4) students' ability to apply the valuing process. Clearly not all of these objectives relate to intellectual behavior, many of them are clearly based on attitudes or affective responses. If we are to develop instructional objectives for our own curricula and for our own teaching/learning experiences which will attack these "umbrella objectives," a scheme or set of categories such as the one described in this guidebook may be helpful. It should be helpful in at least three ways: first, by providing some model objectives for different types of skills; second, by making it easier to discriminate among different types of skills and among the various ways of evaluating these; and third, by providing a map of just where we are concentrating our efforts. In the total evaluation of a humanities program, it will be very helpful for those involved to see precisely what areas of student behavior received the most intensive work and which appeared to be most difficult to attack.

The following table presents an outline of the categories of objectives which are dealt with in Sections VI, VII, and IX of this guidebook.

Outline of the Categories of Objectives*
Treated in this Guidebook

Section	Categories
XI	Convergent Thinking
	(i) Knowledge
	(ii) Comprehension
	(iii) Application
	(iv) Analysis
XII	Divergent Thinking
	(i) Synthesis
	(ii) Evaluation
IX	Affective Behavior
	(i) Receiving
	(ii) Responding
	(iii) Valuing
	(iv) Organization
	(v) World View

VI. Specific Examples of Objectives for Convergent Thinking

This section will deal with four types of intellectual behavior:

(i) Knowledge
(ii) Comprehension
(iii) Application
(iv) Analysis

(i) Knowledge

Consider the following objectives:

1. When shown a drawing of the Parthenon in its original state, the student will be able to give orally the name for at least four major architectural components (e.g., pediment, stylobate, and so forth). The judgment of the teacher will be used to assess correct replies.

(KNOWLEDGE: TERMINOLOGY)

*cf. Bloom, 1971, pp. 271-277, "Condensed version of the Taxonomy of Educational Objectives.

2. After seeing the slides on "The Creation of Frescoes" the student will be able to list at least five artists who specialized in that technique.

(KNOWLEDGE: Facts)

3. Upon completion of the segment of the course on "Creating Mood in Film" the student will be able to describe at least four camera techniques employed by all of the following: Hitchcock, Von Stroheim, Fellini, Bergman.

(KNOWLEDGE: CONVENTIONS)

4. After completing this guideline, the reader will be able to identify the "correct" sequence in developing an instructional unit by placing the numerals 1 (first) through 5 (last) in the apropriate parentheses:

( ) Pre-assess student behavior
( ) Instruct
( ) Specify objectives
( ) Evaluate
( ) Revise

(KNOWLEDGE: TRENDS OR SEQUENCE)

5. Given five different examples of literary genre, the student will correctly identify each by matching genre terms with each example. No aids may be used. Criterion: 4 correct matches.

(KNOWLEDGE: CLASSIFICATIONS OR CATEGORIES)

6. After completing his study of the handbook, the student will be able to reproduce in writing, from memory, at least eight criteria for judging a lake to be polluted.

(KNOWLEDGE: CRITERIA)

7. After watching the instructor's demonstrations, the student will be able to stack and fire a ceramic kiln.

(KNOWLEDGE: METHODOLOGY)

8. At the end of the course, the student should be able to write a paper which shows how the author of the text uses the concept of "pointillism" to explain the color theory of the post-impressionists.

(KNOWLEDGE: THEORY AND STRUCTURE)

As you can see, there are many ways of indicating that our student has knowledge of something. In fact, though, the eight types of knowledge presented are all various ways in which the student shows us that he can remember, or recall, or recognize something that he has experienced. Note that the method for evaluating the student's learning is practically spelled out in the objective itself.

(ii) Comprehension

There are three types of objectives which can be constructed to reflect the way in which we comprehend something. Whereas knowledge referred primarily to recall or recognition, comprehension refers to the ability of the student to use facts or ideas per se without necessarily showing any ability to link these facts to one another or to a broad basis of theory.

Here are some objectives which reflect concern with comprehension:

1 (A) After reading one of Aesop's fables, the student will tell the story of the animals in their own words using their friends as the characters.
Criterion: teacher's judgment as to effectiveness of use of characters and situations.

(COMPREHENSION: TRANSLATION)

1 (B) After studying the graphs on river pollution in the U.S., the student will prepare a precis of not more than 250 words. Criterion: teacher's judgment as to effectiveness of capturing mood and facts in the precis.

(COMPREHENSION: TRANSLATION)

Translation involves transferring meaning from one form of communication through another. The student shows that he comprehends the material being learned through the accuracy of this translation. Of course, he may have knowledge (recall facts), but be unable to translate because of a failure to learn an alternative language or set of symbols for this task. It is important, therefore, to be quite certain that we know whether it is the student's recall or ability to communicate that we want to measure.

2 (A) Having seen the movie, "2001: A Space Odyssey," the student will describe to the class his interpretation of the black obelisk which appears several times. Criterion: degree of novelty or creativity as judged by fellow classmates using a 10-point scale.

(COMPREHENSION: INTERPRETATION)

2 (B) The student will choreograph a solo dance, not exceeding 3 minutes to illustrate the Dance Macabre. Criterion: degree to which a panel of judges feel the movement corresponds to the musical themes.

(COMPREHENSION: INTERPRETATION)

Interpretation provides a new arrangement or a new way of expressing ideas or themes. It is not a one-to-one operation like translation. Note that the criteria for evaluating interpretation frequently involve a judgment on the part of the teacher or others. Since the task is interpretive, the criteria are not likely to be specified in advance. This does not mean, however, that careful comparison and judgment of the effectiveness of the student's products cannot be made.

3 (A) Having read the report on Narcotics in the School, the student will suggest possible long-term outcomes if current usage continues. Criteria: correspondence of suggestions with those given in the teacher's guide which accompanies the above report, plus teacher's judgment of soundness of the predictions.

(COMPREHENSION: EXTRAPOLATION)

3 (B) After studying advances presently being made by scientists (e.g., artificial life, genetic control, ocean farming, and so forth), students will predict future society support for those techniques which will foster humane goals Criteria: degree of correspondence--definition of humane--with data implications.

(COMPREHENSION: EXTRAPOLATION)

Extrapolation indicates comprehension by showing how well the student can use data to predict trends, consequences, effects, and so forth. Extrapolation can be highly speculative with the criteria for evaluation being based almost totally on judgment. On the other hand, where actual data are available--or where there is time to wait for it to be collected--a high degree of accuracy and objectivity can be obtained.

(iii) Applying principles to problem solving

There is a fine line between extrapolation, which is a way of testing for comprehension, and application. The basic difference is that objectives related to application require the student to remember principles, ideas and theories and to use general models or procedures to solve new situations or problems. In contrast, extrapolation "merely" requires that the student use the data provided and extend his thinking and predictions to a future time, with most other conditions remaining the same. Application involves using abstractions in the face of very particular situations. Here is an example to illustrate objectives involving application.

1 (A) Students write an essay comparing two contemporary authors' treatment of an ancient legend (e.g., Ulysses, Job, and so forth). Comparison as to specific incidents used, point of view, attitudes toward characters, Criterion: judgment by teacher of soundness of comparisons and application of thematic, critical and cultural concepts.

(APPLICATION)

The ability of the student to apply his learnings can be tested in a wide variety of ways. In this method of testing for application, the test statements should be new to the student, otherwise we may simply be testing his recall of specific text-book examples.

(iv) Analysis

At pre-high school ages, students may not be able to conduct many types of formal analysis, and even for older students, the skill may be hard to learn. For the teacher attempting to write objectives or to prepare specific lessons to teach analysis, the problems have always been difficult, but the rewards of accomplishing these tasks make the effort worthwhile.

When the student is capable of analysis, he is able to break down complex ideas or statements into their component parts, establish the relationships among these parts and perhaps even build a hierarchy or logical sequence of parts which demonstrate an underlying structure.

A competent chess player can perform analysis in great depth, a student who detects political bias in the way stories are presented in particular magazines is performing another type of analysis, and a third form can be detected in the student who examines questions of social "crimes" from the point of view of "situational ethics" vs. "church dogma." In all of these, the student is demonstrating an ability to reach below the surface and to make comparisons, seek trends or predict outcomes, and make generalizations. Analysis is a complex set of skills which can be taught and which should be tested for in many ways.

Tests of objectives related to analysis tend to be longer than those which measure mere recall or recognition. Their length is dictated by the various components of analysis which are being taught. Several examples are given below. For each one, try to imagine a comparable one from your own field of interest or specialization. As usual, the most detailed overview of the problem is given in Bloom (1971) pp. 181-191.

1 (A) The student will perform a "content analysis" of ten reports of robberies with violence, each taken from the local paper and provided for the examination. The student will identify all adjectives or adjective phrases which specify the race, creed, sex or color of those charged with the crime. A frequency table or chart showing the results of the analysis will be prepared, Criterion: teacher's judgment of effectiveness of the exercise in summarizing the data and in showing relationships.

(ANALYSIS: CLASSIFY USING CRITERIA)

1 (B) The student is given the transcript of a recent Supreme Court decision on busing to establish racial balance. She/he may use the material throughout the examination period to perform the following task: To rank order the apparent reasons for the decision. (Using "1" for the reason which is judged to be most likely.) Criterion: degree of correspondence with published analysis available to the teacher.
(Several reasons may be given for consideration: e.g.: consistency with previous decisions; dictated by interpretation of Constitution; indirect pressure from the Congress, and so forth.)

(ANALYSIS: RECOGNIZE ASSUMPTIONS)

1 (C) The student will indicate agreement or disagreement with each of the following arguments and write an explanation to support his or her position.
Argument A.
1. Nicotinic acid causes skin cancer in mice
2. Cigarettes contain nicotinic acid
3. People should not smoke

Argument B.
1. Test A correlates positively with Test B
2. Test B correlates positively with Test C
3. Test A and C have zero correlation with each other.

(ANALYSIS: UNDERSTAND RELATIONS)

1 (D) Students will pick the most appropriate answers:
In the painting (shown to the class) the artist creates a figure-ground reversal. This:
a. involves the viewer
b. demonstrates his weak technical control
c. is consistent with his theme
d. demonstrates the importance of context.

The use of simultaneous contrast is:
a. a deliberate technique to create visual illusions
b. accidental.

The false perspective:
a. heightens the surrealist quality
b. distorts the importance of background at the expense of the primary figure
c. moves the viewer's eye to the secondary figures in the work.

(ANALYSIS: RECOGNIZE ORGANIZATION)

The teacher who is concerned with teaching and testing analysis should answer the following question prior to framing objectives:

1. Am I trying to teach the student to do something which he can apply to new situations? (If not, then the learning becomes very specific and the testing remains at the level of comprehension at best.)

2. Have I designed the teaching and testing of analysis using materials which are public? That is, when the student attempts to demonstrate his skill, have I provided material that he can use in the test situation and which is open for others to examine and to evaluate as well? (If not, then I may be asking the student to rely on memory for a great many facts rather than teaching him to use the data as raw material for his analysis. Analysis is more than recall of reams of facts.)

3. Am I designing a learning experience and arranging for an evaluation which samples one or more of the following analytic skills?
   a. Analysis of elements using classifications or criteria.
   b. Analysis of relationships.
   c. Analysis of organizational principles.
   (If not, then what kind of behavior is it that I am teaching and testing for?)

4. What will I use for the "criteria" in the statement of the objective and in the evaluation? My own judgment plus other's opinions from the literature? The majority opinion of the class members? (If the criteria are to be based on expert judgment, then the credibility of the judges ought to be examined. Do the students accept the judge as expert? Why? Frequently an examination of this question can itself be a teaching situation.)

VII. Specific Examples of Objectives for Divergent Thinking

This section deals with two more types of intellectual (cognitive) behavior:

(i) Synthesis
(ii) Evaluation

In Section VI, the four types of objectives and behavior which we discussed (knowledge, comprehension, application, analysis) have one thing in common: each can be specified in a way in which a best answer can be stated in advance. The criteria for each objective are stated in ways that imply that there is a correct answer in an answer booklet, or that one answer is better than another in matters of applying principles or that similar a priori standards can be stated. In this way, all of these tend to converge on the correct fact, principle, organization, and so forth. In contrast to these, there are many teaching/learning situations in which each student can create an entirely new or unique reply or solution to the task given to him or her. Indeed creativity depends upon novel combinations of elements in ways that are not specified in advance.

Synthesis and evaluation are two forms of divergent thinking. Objectives can be spelled out for these forms of behavior which demand that the student show evidence of using available data, applying analytic skills and exercising judgment concerning his final product.

(i) Synthesis

The ability to synthesize is tested by asking the students to:

1. Produce a unique communication.
2. Produce a plan or proposed set of operations
3. Derive a set of abstract relations.

Examples of each of these follow:

1 (A) After receiving the tabular data which shows mortality rates for each of several age groups, the student will prepare a graphic presentation of the data. Criteria: all of the data must be included in the presentation; it should be possible for any of the class members to read the graph with the same degree of precision as they would from the original data.

(SYNTHESIS: PRODUCTION OF A UNIQUE COMMUNICATION)

1 (B) At the end of five minutes of small group discussion, the student acting as observer shall have five minutes to prepare and to deliver an oral summary of the discussion. Criteria: judgment by the group members of the adequacy/accuracy of the summary. (Each group member will assign a percentage grade to the presentation. Feedback to the student will consist of a list of these percentages and their arithmetic mean.)

(SYNTHESIS: PRODUCTION OF A UNIQUE COMMUNICATION)

1 (C) The student will prepare an essay of approximately 2000 words on the topic, "The Role of Humanities in Education." Criteria: the essay will specify the target audience of the essay, define "humanities" and "education" and show clearly what educational process, function or intent would be affected by an increase in the amount of humanities in the curriculum.

(SYNTHESIS: PRODUCTION OF A UNIQUE COMMUNICATION)

2 (A) The student will write a response to the following: "It is argued that marijuana leads to hard drugs." Describe the type of research you might undertake to test that hypothesis. Criteria: the research design must not lead to illegal acts; it must not violate any civil liberties nor infringe on the security or privacy of any persons or institutions. At the end of the research it should be possible to draw an inference from the data and state a level of confidence for this inference.

(Note: the last condition makes this an extremely rigid criteria and demands a level of design sophistication considerably above that held by most high school seniors. Removing this last requirement would make the problem feasible for this group.)

(SYNTHESIS: PRODUCTION OF A PLAN OR PROPOSED SET OF OPERATIONS)

2 (B) The student will prepare a floor plan showing the reorganization of his classroom. Criteria: reasons for proposed changes from the present arrangement must be available if and when requested.

(SYNTHESIS: PRODUCTION OF A PLAN)

3 (A) The student will attempt to derive and to report an explanation of the following observations:

(i) Continuous practice on a task leads to lower performance than distributed bursts of practice.

(ii) After continuous practice, performance increases immediately after a rest period.

(iii) After distributed practice, there is no increase (indeed there may be a decrease) in performance immediately after a rest period.

(SYNTHESIS: DERIVATION OF A SET OF ABSTRACT RELATIONS)

3 (B) After studying the crew requirements for space flight, students will answer the following:

It is proposed to send a crew on an extended (7-year) space voyage. Several men and women have been trained so that each can do the job required equally well. Here are several possible compositions of the crew. Write a paper defending your alternative.

a. Three men
b. Two men; one woman
c. One man; two women
d. Three women
e. Any of the above

Criteria: If any alternative other than e. is chosen, the specific role of sex in the tasks to be performed shall be considered and discussed. If b. or c. is chosen, possible social implications must be considered and discussed.

(SYNTHESIS: DERIVATION OF A SET OF ABSTRACT RELATIONS)

Synthesis is a skill that cannot easily be learned in an authoritarian atmosphere--one bound by traditional curricula--nor can it easily be taught that way. It demands openness to new and unusual combinations of ideas and principles. Students enjoy opportunities for this type of self-expression where the problems are realistic and criteria for an acceptable level of performance are made explicit.

(ii) Evaluation

Objectives for evaluation require the students to make judgments on the basis of explicit criteria. The criteria can be provided to them or they can remember them. The judgments they make can be about the degree to which something measures up to a standard. In many ways, our earlier discussion of "effects" vs. "effectiveness" can be applied here as well.

If we ask students to tell us whether something is "good" or "bad," "useful" or "useless," or use some other pair of value terms, but fail to provide criteria of standards or ask them to tell us what theirs are, then we are simply asking what effect the thing in question has for them. This is not a cognitive judgment. If, however, we say, "Evaluate this guidebook in terms of its usefulness to you in learning to write instructional objectives," then we are asking for an evaluation in terms of effectiveness. This is a cognitive skill in which outcomes can be compared to intentions and standards (i.e., when does a guidebook stop being useful/practical because of all the detail and work required to go through it?). As is the case with most skills, evaluation can be divided into the two sub-classifications:

1. Evaluation in terms of internal evidence.
and 2. Evaluation in terms of external criteria.

Some examples of each follow:

1 (A) The student will check the summarizing report of a class humanities survey project completed by another student and indicate any reporting errors to him by using a different colored pencil.

(EVALUATION: IN TERMS OF INTERNAL EVIDENCE)

1 (B) The student will check the correctness of reference numbers in the professor's text with bibliographic titles similarly numbered.* Criteria: 100% accuracy as determined by comparing the student's performance against editor's comments.

(EVALUATION: IN TERMS OF INTERNAL EVIDENCE)

Objectives can also be framed in which the student evaluates critics' statements about art, politics, society, and so forth. In this type of evaluation, the student uses written criticisms to seek out variations in points of view and relates these to one another and to the data upon which they are (supposedly) based.

2 (A) The student will evaluate three paintings by fellow students by rank ordering them in terms of a) handling of media, b) composition, c) appropriateness of content to intent. A final rank ordering will be prepared and "First," "Second" and "Third" awards given.

(EVALUATION: IN TERMS OF EXTERNAL CRITERIA)

In this task, the student makes comparisons among several objects and the basis for these comparisons is provided. His behavior could only be judged if the teacher asked him to articulate the reasons for his choices on each comparison.

2 (B) After completing the course, "Modern Authors," the student will write a well-organized essay on the style and merit of Edward Albee's "Who's Afraid of Virginia Woolf?" Any style of criticism may be used and any theory or comparative material may be cited.

*Author's Note: Objective 1 (B) is an example of exploitation of minority groups by those in positions of authority. It used to occur in some schools and universities in the dark ages, c. 1965.

The student is further informed,* "You are to assume that you are writing for a literature reader, who has read (the novel) and the critical texts of ("Modern Authors"), but who must be convinced of your judgment of the novel.

"Remember that you will be judged not only on what you say, but on how effectively you say it...so that the essay in its final form represents your best intention."

(EVALUATION: IN TERMS OF EXTERNAL CRITERIA)

2 (C) Following any music lesson, the student may make a tape recording of his playing and may compare this with a master tape containing the instructor's rendition of the piece being studied. The student should make brief notes on (or report verbally to the instructor) with respect to timbre, pitch, rhythm and fluency.

(EVALUATION: IN TERMS OF EXTERNAL CRITERIA)

VIII Instructional Objectives in Affective Areas

Cognitive objectives deal with thinking as described above while affective objectives deal with feeling, attitudes and values. Affective responses are seldom specified in any sort of terms that would allow us to infer that the student had acquired them and if so, to what degree. Here, for example, is a statement from the foreword of a program**which "is designed to motivate an increased emphasis on all the arts but particularly those to which our primary response is visual. The program has four goals:

1. To have children grow in esthetic sensitivity

*Adapted from Bloom (1971) pp. 221-222, op.cit.

**The University of the State of New York, The State Education Department, Bureau of Elementary Curriculum Development. Art for Elementary Schools, 1967.

2. To have children acquire some of the skills of the visual arts
3. To motivate creative thinking and doing
4. To nurture individual and personal expression."

These are all affective goals; all of them are important and have been carefully considered, but none is stated in sufficient detail so that we would know precisely when a child had achieved the desired level of sensitivity, skill, creativity or expressiveness.

The next section of this guidebook will focus on affective learning and on ways in which affective objectives can be stated behaviorally.

IX Specific Examples of Objectives for Affective Behavior

The affective domain is divided into five major classes as follows:

(i) Receiving (attending)
(ii) Responding
(iii) Valuing
(iv) Organization
(v) Characterization (total philosophy or world view)

(i) Receiving (Attending)

Here are several affective objectives which suggest several meanings of receiving:

1 (A) The student will indicate through verbal questions or physical movements his awareness that the exhibit has been changed. (AWARENESS)

1 (B) The student will indicate by his questions an awareness that something in the demonstration (play, piece of music, and so forth) is different from its usual mode. (AWARENESS)

The student indicates that he is aware of a difference, or a novel stimulus, but he may not be able to articulate what that difference or novelty is. This is the lowest form of affective objective.

2 (A) The student will remain in the concert hall for the duration of the performance.

(WILLINGNESS TO RECEIVE)

2 (B) The student will cease to initiate disruptive behavior in the classroom.

(WILLINGNESS TO RECEIVE)

The inference in 2 (B) is that if the student stops his disruptive behavior then perhaps he will and can receive information or participate in scheduled activities. This is still a low-level objective and yet 2 (B) may reflect more of an attitude or value than does 1 (A).

3 (A) Given a free-choice situation, the student will select more magazines that embody a higher standard of literary criticism (teacher's judgment of value of literary criticism).

3 (B) As the course in "Civic Affairs" progresses students will begin to spend more time attending to local news broadcasts as compared to time spent with national broadcasts.

(CONTROLLED OR SELECTED ATTENTION)

In both 3 (A) and 3 (B), the student is seen to attend more to a particular class of stimuli or input. He may not be able to verbalize the basis of his choice, nor even be aware of the shift in his behavior. It will be up to the teacher to devise observation schemes that pick up the data necessary to test this type of objective without making the student overly conscious of his behavior or the fact that he is being observed.*

(ii) Responding

There is a progression within this class of objective that moves from simple compliance, through willingness, to satisfaction.

*For a wide variety of techniques which are non-reactive (i.e., do not affect the behavior being observed), you may wish to see, Webb, E. J., et al. Unobstrusive Measures: Nonreactive Research in the Social Sciences, Chicago: Rand McNally, 1966.

An objective for compliance might be stated in these terms:

1. The student will memorize 25 stanzas of the assigned poem and will repeat them with no more than three errors on the final oral examination.

(COMPLIANCE)

In terms of affect, the use of expressions such as "will memorize" and "will repeat" suggest that if the student attempts to do these, he will so do under the instructions (orders) of the instructor. Many cognitive objectives lack any reference at all to the affect which might be produced or encouraged. Consequently it may be useful to think of writing two sets of objectives for our curriculum--one each for the cognitive and affective behaviors we are attempting to shape.

When the student exhibits a willingness to act out of interest or self-motivation, then he has moved to a somewhat higher level of affect or feeling than mere compliance. Here are several objectives related to testing for willingness.

2 (A) The student will request additional time beyond normally scheduled classes to do research or to receive instruction which is related to his project.

(WILLINGNESS TO RESPOND)

2 (B) The student will volunteer to work on the suggested project (assignment) for which no additional academic credit is to be given.

(WILLINGNESS TO RESPOND)

2 (C) The student will suggest topics on which he would be willing to work (or about which he would be willing to give a short lecture) during his free time.

(WILLINGNESS TO RESPOND)

Beyond a willingness to respond, there is the affect associated with actually doing something. Several methods of measuring satisfaction of responding are available. The fact that many of them are taken from the literature on attitude testing is not accidental.

Satisfaction is more closely related to attitudes than simple reception or awareness. These are simple processes by comparison with the more complex emotional basis of satisfaction and other attitudes.

In humanities education, a great deal of effort is likely to be spent in the design and execution of new types of learning experiences (projects). It may be very valuable to specify affective objectives for these. For example, consider the following objectives and four possible tests for it:

The student will indicate his satisfaction with his efforts by completing the following item(s).

3 (A) Looking at my work on this project, I feel: (Check the appropriate item)

( ) Very satisfied
( ) Somewhat satisfied
( ) Neither satisfied nor dissatisfied
( ) Somewhat dissatisfied
( ) Very dissatisfied

(5-point scale for SATISFACTION)

3 (B) The best words to describe how I feel about my work (overall performance) on this project are:

_____

_____

_____

(Open-ended response for SATISFACTION)

3 (C) Of all the projects I have worked on, I would rate my contribution to this one (Place an "X" on the line below to indicate how you feel.):

_____

Totally Unsatisfactory — Neutral — Totally Satisfactory

(Linear scaling of SATISFACTION)

3 (D) My feelings about my effort on this project can best be summarized by the following series of ratings. (For each scale below, place an "X" in the space that represents how you feel about your work. For example, if the first scale is:

	1	2	3	4	5	6	7	
strong	( )	( )	( )	( )	( )	( )	( )	weak

and you felt your effort was quite weak, then you would put an "X" in the space as shown:

	1	2	3	4	5	6	7	
strong	( )	( )	( )	( )	( )	(X)	( )	

The positions are defined as follows:

1. Extremely (Strong)
2. Quite (Strong)
3. Slightly (Strong)
4. Neither (Strong) or (Weak)
5. Slightly (Weak)
6. Quite (Weak)
7. Extremely (Weak)

Now rate: "My effort" on each of the following scales:

	1	2	3	4	5	6	7	
Valuable	( )	( )	( )	( )	( )	( )	( )	Worthless
Good	( )	( )	( )	( )	( )	( )	( )	
Strong	( )	( )	( )	( )	( )	( )	( )	
Active	( )	( )	( )	( )	( )	( )	( )	
Satis-fying	( )	( )	( )	( )	( )	( )	( )	

and so forth

(Semantic differential* scaling of SATISFACTION)

In this last technique, the profile of attitudes or feelings can be inferred from the placement of the "X's." In addition, the use of the adjectives "Satisfying...Unsatisfying" is an opportunity to obtain a direct 7-point scaling of how satisfied the student felt with his efforts.

*See Bloom, (1971) pp. 242-243 op.cit.; and Osgood, C. et. al., The Measurement of Meaning, Urbana, III: University of Illinois Press, 1967.

Note that these four techniques are not all-inclusive. There are many other measures of satisfaction as well as of other attitudes. For most purposes, however, standardized tests of attitudes are probably less efficient than scales which you derive for yourself. The reasons for this statement are, first, in drawing up your test in conjunction with your objective, you are able to specify clearly just what behavior you will use as an index of your student's satisfaction (or any other attitude for that matter), and second, you are able to custom-build your test to reflect local jargon or the speech level of your students as well as local events or situations.

For those who may want an excellent collection of tests covering many curriculum areas and designed to measure many attitudes, one available text is that by Shaw and Wright (1967).*

(iii) Valuing

In Bloom's (1971) study of objectives, the category of valuing is divided into three levels: acceptance of value, preference for a value, and commitment . These three levels may be illustrated in the following brief statements of objectives. Following this, we will look at the process of valuing and how this can be studied.

(a) The student will write a paper (or give a talk) commenting on the reasons he would or would not:
- report that a fellow classmate had cheated
- identify the person responsible for starting a rumor
- help a neighborhood friend hide stolen property.

(ACCEPTANCE OF A VALUE)

The paper or talk would provide data for inferring the basic underlying value which would direct the student's behavior in these three hypothetical situations.

*Shaw, M. E. and Wright, J. M., Scales for the Measurement of Attitudes, New York: McGraw-Hill, 1967.

(b) After each member of the class has presented a position on the issues raised in (a) above, the student will select an individual with whom further study on the topic can be done.

(PREFERENCE FOR A VALUE)

The prediction here would be that individuals would, in general, align themselves with those expressing similar values. If they attempted to convert one of their colleagues, this would be evidence not only that they held the value, but also that they had a commitment to it (see (c) below).

(c) After reviewing the decisions made by the class council (or city council or State Legislature), the student will write a letter to the responsible officials indicating his agreement or disagreement with the decision (or will invite a representative to debate the question; or will seek to organize opposition or protest groups).

(COMMITMENT)

The Valuing Process

The valuing process is a sequence of operations. It is the opposite to acting on faith or to compliance. In valuing, individuals engage in both cognitive and affective behaviors as illustrated in these six steps:

1. Recognition by an individual of the need to choose a direction for action (or of a possible choice) in a particular choice-making situation;

2. Identification of alternative actions which are available to an individual in a situation which requires choice-making;

3. Analysis through inquiry of each alternative in the light of its possible consequences upon one's self and one's fellows;

4. Choosing the alternative which appears to offer the wisest and most beneficial set of consequences;

5. Putting the chosen alternative into practice;

6. Reevaluating the action and its consequences each time in the light of new experience.

It is through the valuing process that we move from commitment to a value position to the next highest level of the affective process, Organization (see section (iv) below). In the valuing process, the student tests the usefulness of a particular value in helping him to make choices which lead to satisfactory outcomes. For examples, students may be confronted with concerns* such as:

- always obeying rules
- asking for advice
- helping others
- associating with minorities
- use of drugs and alcohol
- satisfying sexual drives
- planning for the future
- choosing careers
- welfare programs
- civil disobedience
- religion and conduct
- personal responsibility

The sequence of topics from top to bottom of the above list reflects the type of concerns which arise as students grow older. At the very young ages (5 to 9), rules and relationships appear to be of prime importance--at the level indicated in the few items listed above. At older age levels (mid and late teens), questions arise related to more general societal issues, one's personal role in society and dilemmas surrounding self-worth, "ultimates" and personal responsibility.

Valuing then, is the essence of a humanized education. If our students can learn to engage effectively in valuing then they can become independent problem solvers who make rational decisions, accept the consequences of their acts and learn from their successes and failures.

The purpose of this guidebook is to show how objectives might be framed for learning experiences designed to engage students in the valuing process.

In order to do so, we might start by taking a single topic and then working through the entire valuing process, but there are so many possible directions a discussion might take, that this could

*Quotations are meant to be illustrative only. Many forms will occur to indicate awareness that options need to be considered.

be not only artificial but also misleading. Instead, a generalized model for dealing with the process is described here, and ways of, applying it are considered.

Objective 1: The student will indicate dissatisfaction with a rule, a stated position, or a description of some personal or social condition.

Criteria: The student will express dissatisfaction by any of the following direct statements, ("I disagree"):* questions, ("Do you always have to do it that way?"); physical means** (puzzled looks, scratching head; agitated movement); or possibly by indicating willingness to receive information on a question.

(RECOGNIZE NEED FOR CHOICE)

Examples: Assume a class of children, ages 6 and 7. The following statement might be made by the teacher, "I think every rule ought to be followed," followed by a pause. If there are no responses which meet the above criteria, some direct questioning might be undertaken, "Are there any rules that are hard to follow?" or "Which rule do you (name of student) find hardest to follow?" and so forth.

Or Assume a class of ages 15-17. The opening statement might be, "It seems to me that all drugs are going to have to be restricted to those over 21 years of age." There are two "hooks" in this statement. One is the word "all," the other is the expression "those over 21..." Students have the opportunity to question your intent on either issue.

*Quotations are meant to be illustrative only. Many forms will occur to indicate awareness that options need to be considered.

**There is nothing novel in this. All teachers become aware of the particular non-verbal ways their students have of indicating interest, confusion, or a need for clarification.

The intention of this first objective is to find a way to open discussion around questions where the range of choices may not have been fully explored by the student. In fact, by stating the objective so that we attempt to create dissatisfaction, we are putting pressure on the student to look at the reasons for the positions which she/he holds.

Objective 2: Each student will suggest orally or in writing several alternative means of reaching a goal or of maintaining a desirable state.

Criteria: The number of alternatives should be specified by the teacher or determined through open discussion with the students. In order to qualify an alternative, the student must argue that the same personal, institutional or societal needs could be met by assuming some variation of the current solution or by creating a new one.

(IDENTIFICATION OF ALTERNATIVES)

Examples: In a discussion about the need to follow every rule, some alternatives which this age level would create and which would be acceptable might be:

"Follow the rules which you are sure were meant for you."

"Follow the rules which people you trust make up."

"Don't follow rules that sound silly."

Note, these are alternatives and each is acceptable as a statement of an alternative. The consequences of acting on these (and of evaluating them) have not yet been examined. The important thing is that the child be encouraged to generate many possible alternatives. Encourage the production of alternatives without judging them. Encourage the child to produce alternatives without having him unduly consider or censor them.

In the discussion about drugs, some alternatives might be:

"Prescription drugs available regardless of age; hard drugs available through government clinics; soft drugs available on the market."

"Lower the age to 17 and I agree with you."

"Agreed, except for soft drugs which should be restricted like alcohol but no more severely."

All of these are acceptable as alternatives. If they are produced in open discussion, with each student being required to produce at least one new alternative, the experience can be very creative. In addition, if the requirement to evaluate is suspended, small teams of students can create intense feelings of cooperation as they "brainstorm" the question. This is divergent thinking applied to the original position.

Obejctive 3: Each student (or student-team) will prepare an evaluation of some of the alternatives. The evaluation will deal with at least one of his/her (their) alternatives plus at least one other alternative.

Criteria: The evaluation shall consider both internal and external criteria where appropriate and shall include statements which give evidence that the following have been considered:

a. Description of initial position
b. Reason why initial position might continue if not challenged (examined)
c. Reason for examining a.
d. The suggested alternative to a.
e. The likely effect(s) of adopting and acting on d.

(CONSEQUENCES OF VARIOUS ALTERNATIVES)

Discussion: In order to make this stage of the valuing process most meaningful, it is important that all students examine possible consequences both from their own perspective and then from the perspective of the larger class. Again, there is an opportunity for both individual and small group creativity. The intent of this stage of the process is not simply to find the consequence of a given alternative, but to examine several possible consequences for each alternative. This is divergent thinking applied to each alternative.

Objective 4: The student (or student-team) will indicate his/her choice(s) of the alternative which she/he prefers (either in writing or orally; or through actual behavior if this is possible).

If there are several possible alternatives, each with a number of consequences, then choice may be indicated by a specially constructed test form. Each student should follow the same format as follows:

(1) The original position was:_____

_____

(2) I considered the following alternatives:

A._____

B._____

C._____

(3) The consequences for A are:

(i)_____

(ii)_____

(iii)_____

The consequences for B are:

(i)_____

(ii)_____

(iii)_____

and so forth

(4) My choice is alternative_____, based on the following considerations:

_____

_____

_____

Criteria: 1. In the latter portion of the response form (see above), the student should indicate clearly the basis of his/her comparisons and the reason(s) for his/her final decision. This involves a statement of the various consequences within each alternative.

2. For advanced grades, it may be helpful to prepare a matrix* such as the following. Note that the same kinds of consequences must be created for each alternative.

(CHOOSING FROM ALTERNATIVES)

(For each consequence, the relative benefits should be indicated by ranking across the alternatives. The total for each alternative indicates total benefit for it.)

		Alternative			
		A	B	C	Note:
Consequence	(i)**	(2)	(3)	(1)	Rank of 3
Consequence	(ii)	(1)	(2)	(3)	indicates
Consequence	(iii)	(1)	(3)	(2)	greatest
Total		4	8	6	benefit.

**e.g., (i) Benefit to social organization
(ii) Benefit to self
(iii) Benefit to close friends

Discussion: In the example given, Alternative B with a total ranking of 8 would likely be chosen as this indicates the greatest overall benefit. In more complex situations, both costs and benefits may be entered on the same matrix or on two separate matrices and the final decision made by considering a benefit/cost ratio. This is a very rigid method of decision making or or arriving at a free choice, and it is meant as an analogy to what we frequently do--almost unconsciously--in a complex valuing process.

*See Robinson, F. G., et. al., Inquiry Training: Fusing Theory into Practice. Profiles in Practical Education, No. 4. The Ontario Institute for Studies in Education, Toronto, 1972, p. 24.

Objective 5A: Having arrived at the point where the choice of an alternative is possible, the student will demonstrate that his choice is consistent with other previous choices or that his choice follows logically from other statements or demonstrations of his values or attitudes.

(ACT UPON CHOICE)

Criteria: Internalization refers to the inclusion of a particular value in a larger heirarchy. The teacher's judgment will frequently be required to determine whether a particular choice has been based upon an overall scheme or structure of values. The statements provided by the student (see the responses form above, question (4), "My choice is...based on the following considerations.") may suggest these larger value considerations which direct his/her choices and behavior. In general, it will be necessary to observe several choices in valuing situations in order to infer the underlying value structure.

Objective 5B: The student will demonstrate that he has internalized a value by defending his choices against external examination.

(ACT UPON CHOICE)

Criteria: Blind uncritical defense of a position or choice taken at the end of a valuing process would be evidence that the underlying value has been deeply incorporated or internalized, but such a defense would not consider new data nor engage in further valuing. The student who successfully copes with challenges or who incorporates new data without giving up his original position can probably be said to have internalized the value in question.

Objective 5C: The student will demonstrate that he has internalized the valuing process by being able to describe its six steps orally or in writing; or by following the process when new situations are presented to him, or by calling others' attention to ways in which the process or parts of the process could be used to examine new problems.

(ACT UPON CHOICE)

Comment: You may wish to teach the valuing process as a procedure independent of particular content. This could be true during the first exercises or new learning experiences. In these cases, it would seem quite legitimate to test for actual recall of the six steps as outlined in this guidebook with criteria such as: Will recall from memory all six steps of the valuing process and will reproduce these in writing (or orally) in the correct sequence.

Objective 6: The student will demonstrate that after making a choice from among several alternatives, she/he is able to use data resulting from his choice.

(RE-EVALUATION)

Criteria: The choice may be indicated on a response form, or through a verbal commitment or other form of physical response. As a result of the choice, the student may receive new information which bears directly on his/her action. This information could be provided verbally by fellow students or by the teacher, or it would be the direct consequence of the student's action. To say that the student "is able to use data" means he/she will recognize that the results of a choice can be related back to at least one of the originally predicted consequences (or perhaps recognize that an unforeseen consequence has resulted).

The student "demonstrates" his/her ability to use data by indicating recognition, or by suggesting that he/she wishes to make another choice, or by preparing another matrix such as the one illustrated above for Objective 4.

(iv) Organization

In the description of the valuing process, we came into contact with much of the material to be discussed under the heading Organization and also under the next heading, Characterization (World View). As students develop each of their values and also increase the total number of values which they use in making choices, the need arises to organize these into a coherent system. The system has a hierarchy--some values dominate others--and a set of relationships among the values which make it up. Writing objectives for organization involves the consideration of two questions: first, conceptualization of a value, and second, the actual organization of a value system.

1 (A) The student will make a judgment about the appropriate response for the country to make if one of its allies is attacked. Criteria: The judgment may be written or oral. It should indicate a rationale for the proposed action. For example, "Our country has made a treaty to respond...and we must honor such treaties if we are to be respected, and so forth... The teacher's judgment, perhaps augmented by further discussion with the student, will frequently be the final criteria of whether values underlie the response or whether it is simply recalled from other sources.

(CONCEPTUALIZATION OF A VALUE)

1 (B) After viewing the paintings, the student will make a judgment about the quality of the work. Criteria: the judgment may be written or oral and should indicate the basis on which the student decides whether

the paintings are "good" or "bad," "strong" or "weak," "artistic" or "non-artistic," "creative" or "decorative," and so forth. In short, the use of value terms or adjectives implying worth should be defended.

(CONCEPTUALIZATION OF A VALUE)

This type of objective can be set for any age group and for any curricula content in the humanities. The critical factor in making the objective useful is the specification of the criteria. The student's ability to indicate preference for one thing over another, or one action over another, is a sufficient index that there may be an underlying value. The simple task of asking a student to rank order objects in terms of preference produces data which can be used as the basis for a discussion. If the student cannot articulate the value (reason), the teacher may have to imply it. As long as some record of the student's ranking or of his discussion is kept, it will be possible to review this at a later date to see how the value system is developing. (Such records also become useful for evaluating the success of instruction in the valuing process in general or of specific learning experiences.)

2 (A) The student will prepare a commentary on the following statement, "Gothic cathedrals are music set in stone." Criteria: the commentary will contain at least two value-based statements and will show that there is a recognized relationship between them. The relationship may be indicated by the use of terms like "similarly" or "in contrast" or "it follows from."

(ORGANIZATION OF A VALUE SYSTEM)

2 (B) After listening to any example of 12-tone music, the student will respond to the following question, "Do you agree that the word 'beautiful' can be applied to this piece of music? Why?" Criteria: the student must support his answer. His answer should indicate that at least two values are

being considered in deciding whether the term "beautiful" is appropriate. At least one of the values should apply to the music, another should provide a definition of the term "beautiful" or indicate in what ways it is appropriate to use this word.

(ORGANIZATION OF A VALUE SYSTEM)

As a teaching technique, you may wish to provide your criteria for assessing the answers to questions such as those illustrated here. Knowledge of the criteria can help the student to articulate alternative value positions and to consider possible relations among these. Exercises such as these can probably help to create organizations of values where none may have existed before.

(v) Characterization (total philosophy or world view)

Here are several objectives to consider:

1 (A) The student will exhibit consistency in his/her choices. Criteria: the student will choose the three statements from the following list which are marked with asterisks.*

Which of the following statements would you be most likely to use in ordinary conversation?

1. "Everyone knows that capitalism is failing."
(*) 2. "I think there are some failings in capitalism."
3. "They say that capitalism is failing."
(*) 4. "The evidence is that capitalism is failing."
(*) 5. "My experience is that sometimes capitalism fails."

(GENERALIZED SET)

*Asterisk would not appear in question. Those items marked with asterisks indicate use of data or personal experience as opposed to authority or a generalized appeal to "common knowledge."

1 (B) After reading at least one work by each of the following authors, the student will write a paper identifying any common themes which are of interest to him: Charles Dickens, John Steinbeck, Karl Marx, John Dos Passos. Criteria: the student's paper will indicate that he has identified at least one common value consideration in each of the four authors.

(GENERALIZED SET)

1 (C) While listening to the record selections from any one of the following speakers the student will make note of techniques used to create a sense of immediacy with the audience. (Winston Churchill, Franklin D. Roosevelt, John F. Kennedy)

(GENERALIZED SET)

In all three of these sample objectives, the student is being tested for his generalized set. This is another term for his selective perception, or his basic orientation. This type of set is a combination of attitude and perception which allows the student to attend selectively to the world around him.* As Bloom puts it,

> "A generalized set is a basic orientation which enables the individual to reduce and order the complex world around him and to act consistently and effectively in it." (1971, p. 276).

We test for generalized set everytime we ask our students to, "Comment generally on the things you observed and appreciated in the recent visit to the museum (gallery, concert, bank, post office, brewery, and so forth).

2 (A) The student will exhibit independent security.** Criteria: the student will accept the consequences of his/her

*You may recall the story of the playright who took his aged mother to his first production. On its completion he asked, "Well, how did you like it?" and was devastated when she replied, "Well, the costumes were nice."

**As defined by Blatz, W., Institute of Child Study, Toronto. See also, Blatz, W., Understanding the Young Child, Toronto: Clark Irwin, 1944.

actions. She/he will acknowledge that her/his behavior is the result of her/his choice to act in a certain way and that, whatever the consequences, these are her/his to accept and to deal with. She/he may seek help to deal with consequences or to weigh alternatives, but in the end, she/he will own both her/his actions and the results of these actions.

(CHARACTERIZATION)
(LIFE STYLE; WORLD VIEW)

2 (B) The student will engage in the valuing process to whatever extent appears reasonable and effective. Criteria: the student will examine statements and situations as they are presented to him/her. He/she will make a judgment or evaluation of the statement or situation in order to determine if there are alternatives which might be considered. He/she will carry on with the valuing process until he/she has either accepted the original position or reached an alternative which appears better to him/her. He/she will take whatever action appears appropriate at that time--including, perhaps, consultation with others--and then take responsibility for the outcome of his/her decision.

(CHARACTERIZATION)
(LIFE STYLE; WORLD VIEW)

2 (C) The student will behave humanely. Criteria: (the student will engage in the valuing process as defined above.) In determining consequences of alternatives, the student will consider possible and probable effects of his/her behavior on him/herself, his/her peers, his/her family or other social groups or systems which would appear to be affected by his/her decisions. She/he will indicate awareness of being ultimately responsible for his/her actions and will weigh this responsibility against his/her other commitments and responsibilities (social contracts).

(CHARACTERIZATION)
(LIFE STYLE; WORLD VIEW)

Recall that, as stated here, these are teacher's objectives. If your intent is to help your students to achieve these or similar objectives, then discussion of the criteria with the students seems essential to the learning experience. They may accept the objective, but reject the criteria. If so, you are launched into a valuing process--one which may change the criteria and perhaps the original objective as it was stated. Neither the objective nor the criteria are fixed; both are valuable starting points.

APPENDICES

A. Objectives for this Guidebook A1

B. Part 1: Self-evaluation Questions

Section 4 B5
Section 6 B7
Section 7 B8
Section 9 B9

Part 2: Answers to Self-evaluation Questions

Section 4 B11
Section 6 B12
Section 7 B13
Section 9 B14

C. The Psychomotor Domain C16

Appendix A

Objectives for the Guidebook

"Developing Instructional Objectives: a teacher's guidebook"

General

1. Immediately after completing each of the following sections of this guidebook, IV, VI, VII and IX, the user will answer the appropriate self-evaluation questions for that section (see Appendix B: Part 1), will check his/her answers against those given in Part 2 of Appendix B, and will prepare either a corrected answer or will construct a written statement explaining his/her disagreement with the suggested answer. Criterion: user's judgment of degree to which he/she has met his/her objective.

2. The user will provide written statements or other feedback to the author via the evaluation scheme for this guidebook. Criterion: every user of this guidebook will provide data to assist in its evaluation and subsequent revision(s) as required.

3. Using aids if required, the user will correctly recognize a listing of the three domains (sets) of objectives which Bloom and Simpson have analysed. Criterion: correct selection as defined in Appendix B, Part 2 (IV.1).

Section IV

4. After completing Section IV of the guidebook, the user will be able, without aids, to write a brief description of each of the four essential "variables" which must be included in an instructional objective. Criterion: all four judged correct by the user when compared with the answer given in Appendix B, Part 2 (IV.2).

5. Using, if required, the material given in the answer to IV.2, the user will correctly discern the best statements of a behavioral objective from within each of six pairs of objectives. In addition, the user should specify in writing which variable is missing or poorly stated in the less satisfactory objective (or is better stated in the chosen objective). Criterion: five correct selections; correct identification as determined by comparing user's written response with notes given in Appendix B, Part 2, (IV.3).

Section VI

6. (The guidebook may be used in preparing the response for this objective.) After completing Section VI of the guidebook, the user will be able to match correctly at least six of eight brief statements of Knowledge objectives to their appropriate classification, each of three statements of Comprehension objectives to its correct classification and at least three of a set of five objectives (containing one Application objective and four Analysis objectives) to their appropriate classifications. Criterion: as stated above. Answers given in Appendix B, Part 2 (VI.1).

Section VII

7. (The guidebook may be used for any of the questions related to Section VII.) The user will correctly name the type of thinking described by Knowledge, Comprehension, Application and Analysis, and will correctly name the type of thinking described by Synthesis and Evaluation. Criterion: both correct as determined by comparing response with answer to Appendix B, Part 2 (VII.1).

8. Considering the two types of thinking described in Section VII above, the user will indicate for each whether it is possible (or not) for a teacher to state criteria for "correct" or "best" answers as part of the statement of his or her objective. Criterion: comparison with answer in Appendix B, Part 2 (VII.2 and VII.3).

9. The user will construct a written statement which explains the different ways in which criteria relate to the two types of objectives discussed in Section VII above. Criterion: comparison of answer to model supplied in Appendix B, Part 2 (VII.4).

10. The user will indicate agreement or disagreement with new proposition that rankings which indicate a student's personal preference for teachers, programs or classes can be used as indicators of the effectiveness of these parts of the instructional program. Criterion: answer in Appendix B, Part 2 (VII.4).

11. The user will construct two or three written statements to support his or her response to exercise #10. Criterion: comparison of answer to model supplied in Appendix B, Part 2 (VII.6).

Section IX

12. Without the aid of the guidebook, the user will recall the six steps of the Valuing Process and will write these down in the same sequence in which they are presented in Section IX. Criterion: all six correctly described and in the correct order as given in Appendix B, Part 2 (IX.1).

13. Without the aid of the guidebook, the user will correctly match each of the five steps in the design of a learning experience (provided in the question) with the appropriate step(s) in the Valuing Process. Criterion: a suggested set of matches is given in Appendix B, Part 2 (IX.2). A note included in the question will acknowledge the impossibility of a perfect match between the two sets of steps (5 in one; 6 in the other).

14. The guidebook may be used for this objective. The user will construct at least five behavioral objectives, and at least three of these will be affective objectives to replace the following, "The student will learn to appreciate music." Criterion: the answer in Appendix B, Part 2 (IX.3) will call attention to the need to include all four variables in each new objective and will suggest several affective and cognitive behaviors which are appropriate for the content of this objective. User's judgment will be required to evaluate the degree to which he has met this objective.

15. Using the guidebook or any other aids available the user will match three of ten procedures and terms to each of ten behaviors. In creating these matches, the user will also indicate the most appropriate match from among the three created for each behavior. Criterion: as indicated in Appendix B, Part 2 (IX.4), eight of ten first choices should correspond to the answers given. In the case of second and third matches, at least five of ten in each would be considered acceptable.

Appendix B: Part 1

Self-evaluation Questions: Section IV

IV.1 Writers such as Bloom and Simpson have produced works which deal with various domains of objectives. Which of the following sets best describes these domains?

Set 1: Thinking, feeling, doing
Set 2: Performance, affective, evaluative
Set 3: Affective, Problem-solving, cognitive
Set 4: Cognitive, Performance, Affective

IV.2 Behavioral objectives have four essential parts ("variables"). Write a description of each of these without referring to the guidebook.

IV.3 In each of the following pairs of objectives, one is a more adequate statement of the objective than the other. Without using the guidebook:

a. Identify the better statement in each pair;
b. Specify in writing which variable is missing or poorly stated in the less satisfactory objective.

1A Students will improve their spelling efficiency by 15% after completing the course.
1B After completing the course the final grade in spelling will increase by 10% for all students.

2A Seventy-five percent of the class will increase their music appreciation by the end of the course.
2B At the end of the course, seventy-five percent of the class will be able to describe in writing the structure of a fugue with no more than four errors.

3A After completing a finger painting, each child will provide a title for his picture and will explain how the title is related to at least one of the elements of the paintings.
3B At least 75% of the children will complete their finger painting within the alloted time, will assign a title and will explain it.

4A The aim of the course is to increase students' recognition of three recent trends in the development of film as an art form.
4B The aim of the course, "Recent Trends in Film," is to increase awareness of film as a developing art form.

5A Every student in the school will learn the fire drill and will execute it without error.
5B Every student in the school will learn the fire drill and will execute it without error during the surprise practice session.

6A Eighty percent of the class will score at least 75% on the final test of long division skills.
6B Eighty percent of the class in arithmetic will pass the final test in long division.

Self-evaluation Questions: Section VI

The material in Section VI of the guidebook may be consulted to help answer the following:

IV.1 There are four types of objectives associated with convergent thinking. These are:
(i) Knowledge
(ii) Comprehension
(iii) Application
(iv) Analysis

In Column A below, there are several excerpts from different types of objectives. Match each of these to the appropriate sub-classification under Column B by writing the objective number in the parenthesis next to the classification:

Column A Objective	Column B Classification
1. Separate regular from irregular verbs	( ) Knowledge: Terminology
2. Recall tolerance limits	( ) Knowledge: Facts
3. Give name for motor parts	( ) Knowledge: Conventions
4. Outline plan of book	( ) Knowledge: Trends, Sequence
5. Put steps in proper order	( ) Knowledge: Classifications
6. Prepare directions for experiment	( ) Knowledge: Criteria
7. Give name for FDR; JFK; LBJ	( ) Knowledge: Theory, Structure
8. Find common music style	( ) Knowledge: Methodology

Column A Objective	Column B Classification
1. Use history to predict	( ) Comprehension: Translation
2. Give English equivalent	( ) Comprehension: Interpretation
3. Write essay which explains	( ) Comprehension: Extrapolation

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1. State underlying reasons	( ) Application
2. Provide explanation	( ) Analysis: Classify using criteria
3. Find the pattern	( ) Analysis: Recognize assumptions
4. Match formula to problem	( ) Analysis: Understand relations
5. Pick out "loaded" words	( ) Analysis: Recognize organization

Self-evaluation Questions: Section VII

VII.1 Fill in the blanks - (use guidebook if required).

1. Knowledge, Comprehension, Application and Analysis are examples of_____thinking.

2. Synthesis and Evaluation are examples of_____ thinking.

VII.2 In the first type of thinking identified in VII.1 above, is it possible to state criteria for correct or best answers as part of the teacher's objective?

Answer Yes ( )
or No ( ).

VII.3 In the other type (Synthesis and Evaluation), is it possible to state criteria for correct or best answers as part of the teacher's objective?

Answer Yes ( )
or No ( ).

VII.4 State in your own words (preferably in writing) the difference in the way criteria relate to the two types of objectives described in VII.1.

VII.5 When a student rank orders classes, teachers, programs in terms of his personal preference for them he is providing data on their effectiveness.

True ( )
or False ( ).

VII.6 Support your answer for VII.5 with two or three written statements.

Self-Evaluation Questions: Section IX

IX.1 The Valuing Process has been described at length in Section IX. Without consulting the guidebook, list, in order, the six steps of the Valuing Process.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Check your response to IX.1 with the answer sheet before proceeding with IX.2.

IX.2 Transfer your list of steps in the Valuing Process to Column B below and now match each of these steps with the appropriate step in the design of a learning experience as described in Section III of the guidebook.

Column A Steps in the design of a learning experience			Column B Steps in the Valuing Process
1. Specification of objectives	( )	( )	1. _____
2. Pre-assess student behavior	( )	( )	2. _____
3. Select learning activities	( )	( )	3. _____
4. Evaluate outcomes	( )	( )	4. _____
5. Revise 1 or 3 (above as required	( )	( )	5. _____
	( )	( )	6. _____

There are only 5 steps in the design of a learning experience compared to 6 steps in the Valuing Process. This means that the match is not going to be perfect. Furthermore, some steps in one process may encompass more than one in another. Consequently, there are two parentheses opposite each step in Column B. A suggested answer has been provided for comparison purposes.

IX.3 Write at least five behavioral objectives to replace the following:

"The student will learn to appreciate music."

Try to state at least three of these in affective terms and consider the degree to which each of your objectives includes the required variables.

IX.4 For each of the terms listed in Column A, identify the most appropriate testing procedure(s) or terms from the list in Column B. Use of the guidebook or other resources is encouraged. Write the appropriate letter(s) in the parentheses.

Column A Behavior	1	2	3	Column B Procedures and Terms
1. Preference	( )	( )	( )	A Semantic differential
2. Satisfaction	( )	( )	( )	B Multiple choice test
3. Discrimination	( )	( )	( )	C True-False test
4. Knowledge	( )	( )	( )	D Valuing Process
5. Interest	( )	( )	( )	E Pre-assessment
6. Application	( )	( )	( )	F Extrapolation
7. Recognition	( )	( )	( )	G Effectiveness
8. Valuing	( )	( )	( )	H Analogies
9. Evaluation	( )	( )	( )	I Check-list
10. Designing	( )	( )	( )	J Rank ordering

You should try to put the most appropriate or most obvious match in Column 1.

Appendix B: Part II

Answers to Self-evaluation Questions: Section IV

IV.1 1. Subject variable ("Who..?")
2. Action verb ("...will do what?")
3. Observation scheme ("...how will it be observed..?")
4. Criterion ("...and how well should it be done?")

IV.2 Set 4 is technically superior to Set 1. Both mean approximately the same things. Sets 2 and 3 are deliberately inaccurate.

IV.3 1B is preferable. It specifies the subject variable ("all students").

2B is preferable. It specifies an observation scheme ("describe in writing the structure of a fugue") and a criterion ("no more than four errors").

3A is preferable. It has all four variables clearly specified. 3B, on the other hand, has an ambiguous phrase ("will explain it") which does not specify what is to be explained nor does it require that the title be clearly related to elements in the painting.

4A is preferable. The word "recognition" permits a specific form of test to be developed whereas "to increase awareness" is a general statement of a criterion with no specification of how performance might be measured. Neither A nor B is a particularly good example of a behavioral objective. (Note that the subject variable in each is poorly stated.)

5B is preferable. The observation scheme ("during the surprise session") specifies the conditions under which the student's performance will be observed. Taken literally, 5A would require a fire in order to test student's learning.

6A is preferable. It states a specific performance criterion ("75%") rather than the more general ("pass") criterion of 6B.

Answers to Self-evaluation Questions: Section VI

VI.1

(7)	Knowledge:	Terminology
(3)		Facts
(8)		Conventions
(5)		Trends, Sequences
(1)		Classifications
(2)		Criteria
(4)		Theory
(6)		Methodology
(2)	Comprehension:	Translation
(3)		Interpretation
(1)		Extrapolation
(4)	Application	
(5)	Analysis:	Classify using criteria
(1)		Recognize assumptions
(2)		Understand relations
(3)		Recognize organization

Answers to Self-evaluation Questions: Section VII

VII.1 1. Convergent
2. Divergent

VII.2 Yes

VII.3 No

VII.4 Suggested answer: By its very nature, divergent thinking is unique. Each student can satisfy the stated criteria of an objective in a different way. In contrast, there is likely to be a smaller number of correct answers for questions which test for specific convergent thinking as stated in a behavioral objective.

VII.5 False

VII.6 The point of view expressed in the guidebook is that without knowledge of the student's objectives or intentions, a ranking such as this would provide data on effects (i.e., pleasingness), not effectiveness.

Answers to Self-evaluation Questions: Section IX

IX.1

1. Recognition by an individual of the need to choose a direction for action (or of a possible choice) in a particular choice-making situation.
2. Identification of alternative actions which are available to an individual in a situation which requires choice-making.
3. Analysis through inquiry of each alternative in the light of its possible consequences upon one's self and one's fellows
4. Choosing the alternative which appears to offer the wisest and most beneficial set of consequences.
5. Putting the chosen alternative into practice.
6. Reevaluating the action and its consequence each time in the light of new experience.

IX.2

Column A Design of a learning experience	Column B Valuing Process
1. Objectives	(1) (2) Recognizing...choice
2. Pre-assessment	(2) ( ) Identification...alternatives
3. Selection and instruction	(2) (3) Analysis...consequences
4. Evaluation	(3) ( ) Choice among alternatives
5. Revision	(3) (4) Act upon
	(4) (5) Re-evaluation

IX.3 For each objective, check to see whether you have included each of the four essential variables. See IV.1 above for a review of these.

Some of the affective behaviors which you might have included are:

Willingness to receive
Willingness to respond
Satisfaction
Generalized set

Some of the cognitive behaviors which might have been used are:

Knowledge of Facts or Terminology
Knowledge of Conventions or Structure
Interpretation
Analysis: Understanding relations

IX.4 Some suggested matches for this question are:

	1	2	3
1.	A	B	J
2.	B	A	J
3.	B	C	I
4.	B	C	F
5.	A	J	E
6.	B	C	G
7.	H	B	F
8.	D	E	F
9.	G	D	J
10.	E	D	G

It is difficult for the author to state what all of the associations are among these terms. The letter given in answer Column "1" is felt to be the most important association in that it suggests a very appropriate measuring device for each Behavior listed in Column A.

The matches (associations) given in answer to Column "2" are a little more remote. In some cases they represent alternative methods of measurement; in other cases they represent conceptual links between terms from various portions of the guideline.

The third answer column represents other acceptable measuring techniques and conceptual links as described above.

A criterion for this type of question is fairly arbitrary. In this case, the author would hope for at least 8 of 10 agreements in Column "1" and at least 5 of 10 in each of the other two Columns ("2" and "3").

Appendix C

The Psychomotor Domain

The psychomotor domain has been divided into five major levels:

(i) Perception
(ii) Set
(iii) Guided response
(iv) Mechanism
(v) Complex overt response.

(i) Perception

Before any act -- whether simple or complex -- the learner must become aware of signals, stimuli, messages, and so forth. He/she receives these via his/her many senses and interprets these in the light of both his/her past experience and the demands of the present. This level of activity has been referred to as Perception.

(ii) Set

The student does not respond to every input or message that arrives via his/her senses. Instead, he/she responds to a restricted range that reflect his/her mental, physical and emotional needs. In responding to these needs, the student develops a Set or "preparatory adjustment." He/she tends to act or to experience things in his/her own characteristic way.

(iii) Guided response

In learning any complex skill, the student must not only receive and process a great deal of information, but must also learn a great number of small acts which can be linked together into a larger pattern. For example, the athelete learning to pole vault must put into proper sequence a long chain of skills--starting from gripping the pole, to the runway approach, then to planting the pole at the proper angle and so on through the process. While such a complex skill can be learned through imitation, most of the individual steps are usually taught, as is the transition from one part of the jump to the next. In skills such as these, where an instructor or tutor can guide the learner, we say that the level of Guided response has been reached.

(iv) Mechanism

Mechanism is the term used to describe the condition where the student has internalized a skill so that it is available when and as he/she requires it. An external coach or guide is not required. The learner has made the correct performance habitual. He/she has a certain minimal confidence in his/her ability.

(v) Complex overt response

At this level, several smaller movement patterns become chained together in a manner that permits smooth action with a minimum level of error and with relatively little waste time. The differences between the beginning and expert swimmer are indicative of the differences among the last three levels. The professional golfer or highly skilled gymnast are other examples of highly skilled performers operating smoothly and efficiently.